

**ALASKA STATE LEGISLATURE  
SENATE RESOURCES STANDING COMMITTEE**

April 9, 2021

3:44 p.m.

**MEMBERS PRESENT**

Senator Joshua Revak, Chair  
Senator Peter Micciche, Vice Chair  
Senator Gary Stevens  
Senator Jesse Kiehl  
Senator Scott Kawasaki

**MEMBERS ABSENT**

Senator Click Bishop  
Senator Natasha von Imhof

**COMMITTEE CALENDAR**

SENATE BILL NO. 104

"An Act relating to geothermal resources; relating to the definition of 'geothermal resources'; and providing for an effective date."

- HEARD & HELD

SENATE BILL NO. 61

"An Act authorizing the commissioner of natural resources to modify a net profit share lease."

- HEARD & HELD

SENATE BILL NO. 97

"An Act relating to state land; relating to the authority of the Department of Education and Early Development to dispose of state land; relating to the authority of the Department of Transportation and Public Facilities to dispose of state land; relating to the authority of the Department of Natural Resources over certain state land; relating to the state land disposal income fund; relating to the leasing and sale of state land for commercial development; repealing establishment of recreation rivers and recreation river corridors; and providing for an effective date."

- BILL HEARING CANCELED

## PREVIOUS COMMITTEE ACTION

BILL: SB 104

SHORT TITLE: GEOTHERMAL RESOURCES

SPONSOR(s): RULES BY REQUEST OF THE GOVERNOR

03/10/21	(S)	READ THE FIRST TIME - REFERRALS
03/10/21	(S)	RES, FIN
04/09/21	(S)	RES AT 3:30 PM BUTROVICH 205

BILL: SB 61

SHORT TITLE: OIL/GAS LEASE:DNR MODIFY NET PROFIT SHARE

SPONSOR(s): RULES BY REQUEST OF THE GOVERNOR

01/29/21	(S)	READ THE FIRST TIME - REFERRALS
01/29/21	(S)	RES, FIN
02/10/21	(S)	RES AT 3:30 PM BUTROVICH 205
02/10/21	(S)	Heard & Held
02/10/21	(S)	MINUTE(RES)
03/10/21	(S)	RES AT 3:30 PM BUTROVICH 205
03/10/21	(S)	Heard & Held
03/10/21	(S)	MINUTE(RES)
04/09/21	(S)	RES AT 3:30 PM BUTROVICH 205

## WITNESS REGISTER

STEVE MASTERMAN, Director

Division of Geological & Geophysical Surveys

Department of Natural Resources

Fairbanks, Alaska

**POSITION STATEMENT:** Introduced SB 104 on behalf of the administration.

HALEY PAINE, Deputy Director

Division of Oil and Gas

Department of Natural Resources (DNR)

Anchorage, Alaska

**POSITION STATEMENT:** Provided an overview of SB 104.

BETTY TANGEMAN, Staff

Senator Josh Revak

Alaska State Legislature

Juneau, Alaska

**POSITION STATEMENT:** Presented the summary of changes from version A to version B for SB 61.

RYAN FITZPATRICK, Commercial Analyst  
Division of Oil and Gas  
Department of Natural Resources (DNR)  
Anchorage, Alaska

**POSITION STATEMENT:** Commented on proposed Amendment 2 to SB 61.

#### **ACTION NARRATIVE**

[3:44:49 PM](#)

**CHAIR JOSHUA REVAK** called the Senate Resources Standing Committee meeting to order at 3:44 p.m. Present at the call to order were Senators Kawasaki, Stevens, Kiehl, and Chair Revak.

#### **SB 104-GEOTHERMAL RESOURCES**

[3:46:04 PM](#)

**CHAIR REVAK** announced the consideration of SENATE BILL NO. 104 "An Act relating to geothermal resources; relating to the definition of 'geothermal resources'; and providing for an effective date."

[3:46:35 PM](#)

**STEVE MASTERMAN**, Director, Division of Geological & Geophysical Surveys, Department of Natural Resources, Fairbanks, Alaska, began the presentation to introduce SB 104 with a review of the agenda followed by a discussion of the purpose and key aspects of SB 104 outlined on slide 4 that read as follows:

- **Modernize Alaska's geothermal exploration program**
  - Greater potential for providing affordable, renewable energy to rural communities and remote natural resource extraction projects
  - Promote clean energy industry job creation
- **Align geothermal licensing with the oil and gas exploration license program, thereby increasing feasibility for companies to develop resources**
  - More time for a company to identify and prove resource to convert to leases
  - Conversion to leases based on completion of work commitment and submission of exploration plan instead of proving discovery of commercial resource
  - Doubles maximum acreage allowed for exploration

- **Reforms definitions for geothermal resources to focus on Commercial Use**
  - Explicitly excludes domestic, noncommercial, or small-scale industrial use from the need for a geothermal license or lease

MR. MASTERMAN deferred further introduction of SB 104 to Ms. Paine.

[3:53:11 PM](#)

HALEY PAINE, Deputy Director, Division of Oil and Gas, Department of Natural Resources (DNR), Anchorage, Alaska, stated she would discuss the history and current status of geothermal leasing and permitting in Alaska followed by a sectional summary of the changes that were described in the purpose of the bill.

MS. PAINE explained that since 1983, DNR has held three geothermal lease sales in the Mount Spurr area and one on Augustine Island. The commissioner designated the area in each lease based on substantial indication of substantial resources, which called for a competitive sale of tracts, and SB 104 would change nothing in that process. She highlighted that the only sale that resulted in on-the-ground activity was in 2008 when 16 tracts on Mount Spurr were leased, but those tracts were subsequently relinquished. At present, she said there are two pending applications for geothermal exploration prospecting permits and both would benefit from the changes proposed in SB 104. DNR issued the final Best Interest Finding for the first application March 12, 2021 and the preliminary Best Interest Finding for the second application March 26, 2021.

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MS. PAINE directed attention to the sectional summary for SB 104 on slide 7 and provided a review of Sections 2, 3, and 5.

Section 2 has the first of several changes in terminology. "License" is used instead of "permit" to align with oil and gas exploration licensing. It also provides an explicit exemption for geothermal resources intended for domestic, noncommercial, or small-scale industrial use. Finally, the preferential rights provision is removed as it is more relevant to water rights or other surface uses that are not associated with the mineral estate. Not applying this to domestic use further protects private rights.

Section 3 extends the term of the license from two years to five years. Additionally, the lease conversion requirement of commercial discovery and development plan is replaced with a work commitment and exploration plan. The work commitment is the current standard for oil and gas leasing. A work commitment is expressed in dollars of direct exploration expenditures. This provides more flexibility than a finite definition of a commercial quantity discovery.

MS. PAINE skipped to Section 5 and explained the maximum acreage in a geothermal lease is increased from 51,200 to 100,000 acres. The definitions for geothermal fluids and geothermal resources are modernized to account for changing technology and it removes temperature requirements currently in statute.

MS. PAINE advised that the foregoing was a summary of the sectional analysis.

[3:57:37 PM](#)

SENATOR STEVENS noted that the federal government does not recognize hydropower as renewable energy, and asked whether geothermal is considered renewable.

MR. MASTERMAN answered that the Agile Act [that passed in 2019] recognized geothermal energy as a renewable energy source.

SENATOR STEVENS expressed appreciation for the information.

[3:58:23 PM](#)

SENATOR KIEHL asked how the helium that comes up with the hot water would be treated in the redefinition of geothermal resources. He noted that the current definition explicitly excludes helium, but the new definition does not.

MR. MASTERMAN deferred the question to Ms. Paine.

[3:59:10 PM](#)

MS. PAINE said she would send follow up information to help explain how helium would be treated when it is removed from the new definition.

CHAIR REVAK asked her to send the information to his office and it would be distributed to the committee.

[3:59:41 PM](#)

SENATOR KIEHL ask what notice and opportunity a surface land owner would receive if geothermal prospecting or drilling was

planned for underneath their land, since the bill removes that preference right.

MS. PAINE answered that the current, robust public process would not change with passage of SB 104. In that process, the director must issue a written Best Interest Finding (BIF) that finds disposal of the land is in the best interest of the state. When an application is received, notice and the opportunity to comment goes out to affected communities, municipalities, Native organizations, and landowners. Once the preliminary BIF is published, interested parties have another opportunity to comment.

SENATOR KIEHL asked if the notice is sent specifically to the owner of record of the surface parcel.

MS. PAINE answered that letters are not sent to individual landowners but notice is sent through multiple public venues in the area including local organizations, the post office, and media outlets.

4:02:26 PM

SENATOR MICCICHE joined the committee.

MR. MASTERMAN directed attention to the maps on slide 9 of the geothermal system associated with Mount Spurr. The map on the left provides a regional view of Mount Spurr with a volcanic vent and hot springs on either side, Cook Inlet in the center, and Anchorage on the right. He pointed to the power lines and roads and explained that Mount Spurr is about 35 miles from the power grid and road system so a spur line and access road would be required if these systems are found commercially viable.

MR. MASTERMAN said the map on the right of slide 9 provides a close-up of the hot springs and volcanic vent as well as the two permit areas that GeoAlaska and Razor Geothermal applied for, both of which are in the immediate area of the hot springs. The close-up also shows the holes Ormat drilled on the southern flank of the volcano in 2008. [This is referenced in the leasing/permitting history on slide 6.]

4:05:05 PM

MR. MASTERMAN explained that the shaded areas on the map reflect the geology of the area. The green areas reflect Tertiary sediments in the west foreland formation, which is a series of conglomerates. The areas in different shades of pink are the volcanic rocks and intrusive rocks associated with Mount Spurr.

He described the geology in the area as somewhat complicated. Both the Capps Glacier fault and the Lake Clark fault are major geological features that have considerable offset. He said Ormat drilled on the southeast side of the Capps Glacier fault and it was a dry hole. They drilled through the shallow volcanic rocks into the underlying sedimentary rocks but never intersected any water or rocks that were even warm. They drilled in the area for a reason but it was a 100 percent miss.

He said the new explorers have that information but they still have the tough task of finding the right fault and tracing it back to the geothermal reservoir that is sourcing the Mount Spurr Hot Springs. It may take the geologists a number of summer seasons to do the geologic mapping and geophysical surveys before they start drilling. These companies also need a fairly large tract of land. The holes Ormat drilled were approximately 4-5 miles away from the surface expression of the hot springs, so 5-6 miles on either side of the surface expression is not unheard of to locate the reservoir.

MR. MASTERMAN asked if there were any questions about Mount Spurr.

[4:09:03 PM](#)

SENATOR KAWASAKI asked for an explanation of the mechanics of a reservoir for a geothermal field.

MR. MASTERMAN answered that a geothermal resource is a fluid like oil and gas, but the companies are looking for a reservoir of high flow high temperature water, which comes from ground water that is heated by a volcano. Similar to oil and gas, a geothermal reservoir is often hosted in porous rock but it is volcanic rock that is sufficiently porous to provide a conduit for the hot water migration. Faults also host geothermic resources. They provide a mechanism for fluid to migrate through the rocks, picking up heat as it makes its way to the surface or into a bore hole. He noted that unlike an oil and gas reservoir, the rocks surrounding a geothermal reservoir are hot so any water that flows back into that system will recharge the available resource that can then be extracted.

[4:11:44 PM](#)

SENATOR KAWASAKI asked what happens if more than one company is drawing on the same geothermal reservoir.

MR. MASTERMAN offered his understanding that the same rules would apply as for oil and gas leases. The boundaries are

vertical and the details of who owns what part of the reservoir have to be worked out, but one company cannot suck their neighbor's reservoir dry. This would apply to GeoAlaska and Razor Geothermal whose applications are for adjacent areas. If the reservoir straddles the boundary, resolution of the competing interests would be necessary.

[4:13:09 PM](#)

SENATOR STEVENS asked how the power generated at Mount Spurr would get to market.

MR. MASTERMAN explained that a power plant would be constructed close to the drill holes and the electricity that is generated would be carried on a short intertie, presumably to the Beluga power plant and then into the Railbelt electrical network.

SENATOR STEVENS asked the location of the Beluga power plant.

MR. MASTERMAN replied it is a little north of Tyonek.

[4:14:44 PM](#)

MR. MASTERMAN directed attention to the maps of Pilgrim Hot Springs on slide 10, the left of which shows the geologic units in the region. Pilgrim Hot Springs is in the center with the Graphite Creek project to the west. It is the largest undeveloped graphite resource in the nation and will require about 6 megawatts of power if it goes into production. Nome, which is to the south along the Bering Sea, currently has an equivalent power demand. He noted that the heavy black lines in the vicinity of Pilgrim Hot Springs and west to Graphite Creek reflect fault lines. Over geologic time the faults have caused the area to the north to drop and develop into a basin several thousand feet deep, much like the basin in Nevada. He said these faults may play a critical role in the geothermic picture at Pilgrim Hot Springs.

[4:16:47 PM](#)

MR. MASTERMAN directed attention to the close-up of Pilgrim Hot Springs on the right and said the black box reflects the extent of the geothermal exploration in the area. Thus far, 90 degree centigrade water has been identified at about 300 feet and cooler water beneath that. That is an indication that the source of the hot water is not directly below the hot springs. Locating the reservoir will require further exploration and for a company to be interested in doing that it would want a large land position and time to do the exploration work. He said that is the reason for the proposed changes to the existing statutes.



[4:21:50 PM](#)

SENATOR STEVENS asked if DOR was involved in the permitting and leasing of the very costly, failed geothermal plant in Naknek. He said he would like to know what went wrong.

MR. MASTERMAN replied that was before his tenure, but he would follow up with information about the project.

SENATOR STEVENS asked if he was correct in assuming that DNR was involved in the permitting and leasing.

[4:23:24 PM](#)

MS. PAINE answered that DNR did not lease or license those lands, but she and Mr. Masterman would look into it more.

[4:23:56 PM](#)

SENATOR STEVENS said he was pleased the department was not involved but he would appreciate follow up information to understand what went wrong.

CHAIR REVAK asked Jeremy Price to provide brief testimony.

[4:24:54 PM](#)

JEREMY PRICE, Commissioner, Alaska Oil and Gas Conservation Commission (AOGCC), Anchorage, Alaska, stated that the department worked with the commission to ensure the definitions in Titles 41 and 38 were aligned. He expressed appreciation for DNR's efforts and stated support for SB 110.

SENATOR MICCICHE asked Mr. Masterman why, once a geothermal resource is used, it is reinjected into the reservoir instead of another location.

[4:26:13 PM](#)

MR. MASTERMAN answered that from a permitting perspective, it would be easier to reinject the water into the reservoir. Because the water would still be warm, it would take less energy to bring it back up to temperature to be reused. He described it as a loop.

SENATOR MICCICHE said he assumes the magma is recharging faster than the heat from the reservoir is depleted.

MR. MASTERMAN answered that is generally correct.

CHAIR REVAK thanked the presenters

[4:27:37 PM](#)

CHAIR REVAK opened public testimony on SB 104; finding none, he closed public testimony

[4:28:00 PM](#)

CHAIR REVAK held SB 104 in committee for further consideration.

[4:28:08 PM](#)

At ease

**SB 61-OIL/GAS LEASE: DNR MODIFY NET PROFIT SHARE**

[4:29:08 PM](#)

CHAIR REVAK reconvened the meeting and announced the consideration of SENATE BILL NO. 61 "An Act authorizing the commissioner of natural resources to modify a net profit share lease."

He recapped that the bill was heard twice previously and public testimony was heard. He advised that there was a committee substitute (CS) and two amendments for the committee to consider before potentially moving the bill.

[4:30:05 PM](#)

SENATOR MICCICHE moved to adopt the committee substitute (CS) for SB 61, work order [32-GS1706\B].

[4:30:20 PM](#)

CHAIR REVAK objected for discussion purposes.

[4:30:24 PM](#)

At ease.

[4:30:49 PM](#)

CHAIR REVAK reconvened the meeting and asked Senator Micciche to restate the motion.

[4:30:54 PM](#)

SENATOR MICCICHE restated the motion to adopt the committee substitute (CS) for SB 61, work order 32-GS1706\B.

[4:31:11 PM](#)

CHAIR REVAK objected for discussion purposes. He asked Ms. Tangeman to highlight the changes between version A and version B.

[4:31:22 PM](#)

BETTY TANGEMAN, Staff, Senator Josh Revak, Alaska State Legislature, Juneau, Alaska, presented the summary of changes from version A to version B for SB 61. The prepared document read as follows:

At the request of the Senate Resources Committee, legislative legal was asked to conform the initial version of the bill, 32-GS1706\A, to the legislative drafting style and make other changes consistent with existing law. The follow changes were made:

1. Changes to the Update: In several places, changes were made to the existing statutory language in AS 36.30.850 (b)(32) and AS 38.05.180 (j) to increase readability and modernize usage. The Department of Natural Resources, Division of Oil and Gas confirmed that they agreed with the changes.
2. Additional Subsections: AS 38.05.180(p), (s), and (t) all contain references to modification of royalty rates under AS 38.05.180 (j). This draft bill adds language related to the net profit share to those subsections, consistent with the addition of the net profit modification option added by the bill in (j). The Department of Natural Resources, Division of Oil and Gas confirmed that the edits were consistent with their intent.

[4:33:03 PM](#)

CHAIR REVAK removed his objection. Finding no further objection, version B was adopted.

[4:33:49 PM](#)

SENATOR MICCICHE moved Amendment 1.

[4:33:54 PM](#)

CHAIR REVAK objected for discussion purposes.

SENATOR MICCICHE explained that the amendment makes a language change for clarity. It changes "net profit share" to "royalty or net profit share on a lease". On page 2, line 17-18 it revises that language as well to clarify that "without additional capital expenditures, future production would no longer be economically feasible."

He said the amendment makes no substantive change; it adds clarifying language.

[4:34:38 PM](#)

CHAIR REVAK removed his objection; finding no further objection, Amendment 1 passed.

[4:34:53 PM](#)

SENATOR KIEHL moved Amendment 2, work order 32-GS1706\B.4.

32-GS1706\B.4  
Nauman  
3/15/21

## AMENDMENT 2

OFFERED IN THE SENATE BY SENATOR KIEHL  
TO: CSSB 61(RES), Draft Version "B"

Page 3, following line 9:

Insert a new paragraph to read:

**"(6) may not grant a net profit share modification for a field or pool under (1) of this subsection unless the modification requires the lessee or lessees to calculate separate net profit shares for oil and for gas, including separately accounting for oil and for gas for profit, costs, and expenditures;"**

Page 3, line 10:

Delete "(6)"

Insert "(7)"

Page 3, line 16:

Delete "(7)"

Insert "(8)"

Page 4, line 3:

Delete "(8)"

Insert "(9)"

Page 4, line 28:

Delete "(9)"

Insert "(10)"

Page 5, line 2:

Delete "(10)"

Insert "(11)"

Page 5, line 4:

Delete "(9)"

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Page 5, line 9:

Delete "(11)"

Insert "(12)"

Page 5, line 16:

Delete "(12)"

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Page 5, line 17:

Delete "(9)"

Insert "(10)"

Page 5, line 29:

Delete "(9)"

Insert "(10)"

Page 5, line 31:

Delete "(13)"

Insert "(14)"

SENATOR KIEHL explained that Amendment 2 requires the department to decouple oil and gas if it enters into an agreement with a leaseholder to modify a net profit share contract. He noted that the legislature had begun the decoupling process for some taxes and it could continue to do so in the future, but because the net profit share lease is a contract, it can only be opened by mutual agreement. The amendment clarifies that if the contract is opened for modification, the state needs to get decoupling as part of that agreement.

[4:36:09 PM](#)

CHAIR REVAK asked Mr. Fitzpatrick or Mr. Meza from DNR to comment on the amendment.

[4:36:29 PM](#)

RYAN FITZPATRICK, Commercial Analyst, Division of Oil and Gas, Department of Natural Resources (DNR), Anchorage, Alaska, thanked Senator Kiehl for taking time to discuss the amendment with the division. He offered his understanding that the intent of Amendment 2 was to require separate accounting for oil and gas for the purpose of calculating net profit shares if a contract modification is granted.

He opined that the analogous provision in the oil and gas production tax statutes was different in that that it creates different tax rates for oil and gas. Oil is taxed at 35 percent of the production tax value and gas is taxed at 13 percent of the gross value. By contrast, oil and gas would still be subject to the same net profit share percentage. The percentage would not be an issue but there is potential for some timing issues with regard to when the revenues are received. Nevertheless, they should equate over time.

MR. FITZPATRICK said the division does not have a particular opinion on the amendment but it does not create complications. He added that he did want to clarify his understanding that the intent was that the division would be expected to include in the Best Interest Finding the mechanism for dividing the oil expenses from the gas expenses when a contract is being modified.

[4:39:36 PM](#)

SENATOR KIEHL confirmed the intent is that the mechanism would be part of the Best Interest Finding that the public can see and is presented to LB&A. He said it is important to understand that DNR's Commercial Analysis Section will set it up after a thorough commercial and fiscal analysis and negotiation process with the leaseholder. He said the bill provides the commercial analysts tremendous say in the structure and the amendment does not change that except to say the lease would need to decouple oil and gas. He opined that the timing of when the money comes is important when trying to pay for state services.

[4:40:35 PM](#)

SENATOR STEVENS asked if there was a fiscal note attached to the CS, and whether the amendment would require one.

MS. TANGEMAN said the CS did not have a new fiscal note but one will likely be forthcoming.

CHAIR REVAK noted the bill goes to finance next and he believes it will pick up a fiscal note.

SENATOR MICCICHE commented that the reason for the bill is to prolong the life of a very marginal development, and he views the amendment as an unnecessary complication that would add costs.

[4:42:54 PM](#)

CHAIR REVAK stated agreement and maintained his objection. He asked for a roll call vote.

[4:43:23 PM](#)

A roll call vote was taken. Senators Kawasaki and Kiehl voted in favor of Amendment 2 and Senators Stevens, Micciche, and Chair Revak voted against it. Therefore, Amendment 2 failed by a 2:3 vote.

CHAIR REVAK found no further amendments and asked the will of the committee.

[4:44:11 PM](#)

SENATOR MICCICHE moved to report the CS for SB 61, work order 32-GS1706\B as amended, from committee with individual recommendations and attached fiscal note(s).

[4:44:29 PM](#)

SENATOR KAWASAKI objected. He said he tried to figure out how to improve the bill and he thought Senator Kiehl's amendment was

appropriate. He said there are 26 active net profit share leases on the North Slope, and at a time when the legislature is trying to balance the budget, it is difficult to relinquish control over future net profit share leases to a commissioner and then the Legislative Budget and Audit Committee. He said he would continue to object to the bill.

4:45:31 PM

SENATOR MICCICHE withdrew the motion to report SB 61 from committee. He said this will give members time for further discussion and perhaps the bill could move at a later date.

4:45:48 PM

CHAIR REVAK announced he would hold SB 61 in committee for future consideration.

4:46:12 PM

There being no further business to come before the committee, Chair Revak adjourned the Senate Resources Standing Committee meeting at 4:46 p.m.